

## CLAIM AMENDMENTS

1-35. (Cancelled)

1       36. (New) An automated manufacture process test system resident upon a disk drive that  
2 performs a manufacture test process on the disk drive once the disk drive is installed and  
3 operating within a computer system, the test system comprising:

4           a monitor that determines whether any user command from the computer system is  
5 pending or the computer system is idle;

6           a processing module that performs the manufacture test process on a disk of the disk  
7 drive, wherein the manufacture test process is performed on a portion of the disk for the first time  
8 and in a particular manner depending on whether the computer system has issued the user  
9 command or the computer system is idle; and

10          a controller that tracks performance of the manufacture test process such that counters  
11 stored in a memory of the disk drive indicate which portion of the disk has been processed by the  
12 manufacture test process.

1       37. (New) The system of Claim 36 wherein manufacture test process includes at least one  
2 of flaw mapping, embedded runout compensation (ERC) and final drive verification.

1       38. (New) The system of Claim 37 wherein the processing module performs the flaw  
2 mapping such that a first flaw mapping test is performed when a user command for operating the  
3 disk drive is pending and a second flaw mapping test is performed when the computer is system  
4 is idle.

1       39. (New) The system of Claim 38 wherein the first flaw mapping test is performed by  
2 identifying logical block addresses (LBAs) on the disk to which information is to be written,  
3 determining whether the identified LBAs have been processed, and if the identified LBAs have  
4 not been processed, performing a write/verify on each of the LBAs.

1       40. (New) The system of Claim 38 wherein the second flaw mapping test is performed by  
2 accessing the memory and identifying an increment of logical block addresses (LBAs) which are  
3 unprocessed, performing a write/verify on each of the LBAs in the increment, and updating the  
4 memory to indicate which of the LBAs have been processed.

1       41. (New) The system of Claim 37 wherein the processing module performs the ERC  
2 when the computer system is idle by accessing the memory to determine which cylinder was last  
3 processed, performing the ERC on the next cylinder, and updating the memory to indicate  
4 completion of the ERC on the next cylinder.

1       42. (New) The system of Claim 37 wherein the processing module performs the final  
2 drive verification such that a first final drive verification test is performed when a user command  
3 for operating the disk drive is pending and a second final drive verification test is performed  
4 when the computer system is idle.

1       43. (New) The system of Claim 42 wherein the first final drive verification test is  
2 performed by identifying logical block addresses (LBAs) on the disk to which information is to  
3 be written, determining whether the identified LBAs have been processed, and if the identified  
4 LBAs have not been processed, performing a write/verify on each of the LBAs.

1       44. (New) The system of Claim 42 wherein the second final drive verification test is  
2 performed by accessing the memory and identifying an increment of logical block addresses  
3 (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in the increment,  
4 and updating the memory to indicate which of the LBAs have been processed.

1       45. (New) The system of Claim 36 wherein a predetermined portion of the disk is  
2 processed by the manufacture test process before installation of the disk drive in the computer  
3 system, and the portion of the disk drive which has been processed is identified by the controller.

1       46. (New) The system of Claim 45 wherein any major flaw in the disk is detected before

2       the disk drive is installed in the computer system.

1       47. (New) The system of Claim 45 wherein the disk includes concentric tracks and the

2       predetermined portion includes a predetermined percentage of the tracks as well as every Nth of

3       the tracks.

1       48. (New) A method of performing a manufacture test process for a disk drive,

2       comprising:

3       installing the disk drive in a computer system and employing the disk drive for operations

4       of the computer system after the disk drive leaves a factory; then

5       detecting a predetermined condition in the computer system;

6       performing a manufacture test process on a particular area of a disk of the disk drive for

7       the first time in response to the detected condition, wherein the manufacture test process is

8       performed in accordance with information stored in a memory of the disk drive which indicates

9       where the manufacture test process shall begin and end, and the manufacture test process corrects

10      errors detected on the disk; and

11      updating the memory to indicate upon which portions of the disk the manufacture test

12      process has been performed.

1       49. (New) The method of Claim 48 wherein the manufacture test process includes at least

2       one of flaw mapping, embedded runout compensation (ERC) and final drive verification.

1       50. (New) The method of Claim 49 wherein the detected condition includes a user

2       command pending from the computer system and the computer system is idle.

1       51. (New) The method of Claim 50 wherein the flaw mapping includes:

2       determining the detected condition for the computer system;

3       if the user command is pending, before performing the user command:

4 identifying logical block addresses (LBAs) employed as part of performing the  
5 user command;  
6 accessing the memory to determine if the identified logical block addresses have  
7 been previously processed;  
8 if any of the LBAs are unprocessed, performing a write/verify on each of the  
9 unprocessed LBAs and reassigning any of the unprocessed LBAs which fail the write/verify; and  
10 updating the memory to indicate which of the unprocessed LBAs have been  
11 processed;  
12 if the computer system is idle:  
13 accessing the memory and identifying a next increment of LBAs to process;  
14 performing the write/verify on each of the LBAs in the increment;  
15 reassigning the LBAs in the increment which fail the write/verify; and  
16 updating the memory to indicate that the LBAs in the increment have been  
17 processed.

1 52. (New) The method of Claim 49 wherein the ERC includes:  
2 determining the detected condition for the computer system; and  
3 if the computer system is idle:  
4 accessing the memory and identifying a next cylinder to process;  
5 performing the ERC on the next cylinder, and storing in the memory any  
6 generated error values; and  
7 updating the memory to indicate that the next cylinder has been processed.

1 53. (New) The method of Claim 49 wherein the final drive verification includes:  
2 determining the detected condition for the computer system;  
3 if the user command is pending, before performing the user command:  
4 identifying logical block addresses (LBAs) employed as part of performing the  
5 user command;  
6 accessing the memory to determine if the identified logical block addresses have  
7 been previously processed;

8                   if any of the LBAs are unprocessed, performing a write/verify on each of the  
9    unprocessed LBAs and reassigning any of the unprocessed LBAs which fail the write/verify; and  
10                 updating the memory to indicate which of the unprocessed LBAs have been  
11    processed;  
12                 if the computer system is idle:  
13                 accessing the memory and identifying a next increment of LBAs to process;  
14                 performing the read/verify on each of the LBAs in the increment;  
15                 reassigning the LBAs in the increment which fail the read/verify; and  
16                 updating the memory to indicate that the LBAs in the increment have been  
17    processed.

1                 54. (New) The method of Claim 48 including performing the manufacture test process  
2    prior to installation of the disk drive in the computer system to identify a major flaw on the disk.

1                 55. (New) The method of Claim 48 wherein a program for performing the manufacturing  
2    test process is placed in the memory before installing the disk drive in the computer system.

1                 56. (New) The method of Claim 54 wherein the disk includes concentric tracks and  
2    performing the manufacture test process prior to installation of the disk drive in the computer  
3    system includes testing a predetermined percentage of the tracks as well as every Nth track of the  
4    tracks.

1                 57. (New) A disk drive, comprising:  
2                 a disk with spaced tracks for storing information;  
3                 a head that reads and writes information to and from the disk;  
4                 a memory;  
5                 a processing module stored in the memory that performs a manufacture test process on  
6    the disk while the disk drive is installed and operating in a computer system; and

7        a controller that executes the manufacture test process on a portion of the disk for the first  
8    time in response to a predetermined condition of the computer system configured to control  
9    operation of the head when the computer system is idle.

1        58. (New) The disk drive of Claim 57 wherein the memory is a read only memory  
2    (ROM).

1        59. (New) The disk drive of Claim 57 wherein the memory is a processed area of the disk.

1        60. (New) The disk drive of Claim 57 wherein the manufacture test process includes at  
2    least one of flaw mapping, embedded runout compensation (ERC) and final drive verification.

1        61. (New) The disk drive of Claim 60 wherein the processing module performs the flaw  
2    mapping such that a first flaw mapping test is performed when a user command for operating the  
3    disk drive is pending and a second flaw mapping test is performed when the computer system is  
4    idle.

1        62. (New) The disk drive of Claim 61 wherein the first flaw mapping test is performed by  
2    identifying logical block addresses (LBAs) on the disk, determining whether the identified LBAs  
3    have been processed, and if the identified LBAs have not been processed, performing a  
4    write/verify on each of the LBAs.

1        63. (New) The disk drive of Claim 61 wherein the second flaw mapping test is performed  
2    by accessing the memory and identifying an increment of logical block addresses (LBAs) which  
3    are unprocessed, performing a write/verify on each of the LBAs in the increment, and updating  
4    the memory to indicate which of the LBAs have been processed.

1        64. (New) The disk drive of Claim 60 wherein the processing module performs the ERC  
2    when the computer system is idle by accessing the memory to determine which cylinder was last

3 processed, performing the ERC on the next cylinder, and updating the memory to indicate  
4 completion of the ERC on the next cylinder.

1 65. (New) The disk drive of Claim 60 wherein the processing module performs the final  
2 drive verification such that a first final drive verification test is performed when a user command  
3 for operating the disk drive is pending and a second final drive verification test when the  
4 computer system is idle.

1 66. (New) The disk drive of Claim 65 wherein the first final drive verification test is  
2 performed by identifying logical block addresses (LBAs) on the disk to which information is to  
3 be written, determining whether the identified LBAs have been processed, and if the identified  
4 LBAs have not been processed, performing a write/verify on each of the LBAs.

1 67. (New) The disk drive of Claim 65 wherein the second final drive verification test is  
2 performed by accessing memory and identifying an increment of logical block addresses (LBAs)  
3 which are unprocessed, performing a write/verify on each of the LBAs in the increment, and  
4 updating the memory to indicate which of the LBAs have been processed.

1 68. (New) The disk drive of Claim 48 wherein the disk drive performs the manufacture  
2 test process on a predetermined portion of the disk before the disk drive is installed in the  
3 computer system.

1 69. (New) The disk drive of Claim 68 wherein the disk drive detects any major flaws in  
2 the disk before the disk drive is installed in the computer system.

1 70. (New) The disk drive of Claim 68 wherein the predetermined portion includes a  
2 predetermined percentage of the tracks as well as every Nth of the tracks.

1 71. (New) A disk drive, comprising:  
2 a disk that includes spaced tracks for storing information;

3           a head that reads and writes information to and from the disk; and  
4           a controller that executes a manufacture test process stored in the disk drive (1) on a first  
5       portion of the disk and not a second portion of the disk while the disk drive is manufactured at a  
6       factory and before the disk drive is installed and operating in a computer system, and (2) on the  
7       second portion of the disk for the first time after the disk drive is manufactured at the factory and  
8       while the disk drive is installed and operating in the computer system.

1           72. (New) The disk drive of Claim 71 wherein the manufacture test process includes at  
2       least one of flaw mapping, embedded runout compensation (ERC) and final drive verification.

1           73. (New) The disk drive of Claim 71 wherein the manufacture test process includes the  
2       flaw mapping.

1           74. (New) The disk drive of Claim 73 wherein the controller executes the flaw mapping  
2       on the second portion of the disk such that a first flaw mapping test is performed when a user  
3       command for operating the disk drive is pending and a second flaw mapping test is performed  
4       when the computer system is idle.

1           75. (New) The disk drive of Claim 74 wherein the first flaw mapping test is performed by  
2       identifying logical block addresses (LBAs) on the disk, determining whether the identified LBAs  
3       have been processed, and if the identified LBAs have not been processed, performing a  
4       write/verify on each of the LBAs.

1           76. (New) The disk drive of Claim 74 wherein the second flaw mapping test is performed  
2       by identifying an increment of logical block addresses (LBAs) which are unprocessed,  
3       performing a write/verify on each of the LBAs in the increment, and updating which of the LBAs  
4       have been processed.

1           77. (New) The disk drive of Claim 74 wherein:

2           the first flaw mapping test is performed by identifying logical block addresses (LBAs) on  
3   the disk, determining whether the identified LBAs have been processed, and if the identified  
4   LBAs have not been processed, performing a write/verify on each of the LBAs; and

5           the second flaw mapping test is performed by identifying an increment of logical block  
6   addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in the  
7   increment, and indicating which of the LBAs have been processed.

1           78. (New) The disk drive of Claim 71 wherein the manufacture test process includes the  
2   ERC.

1           79. (New) The disk drive of Claim 78 wherein the controller executes the ERC by  
2   determining which cylinder was last processed, performing the ERC on the next cylinder, and  
3   indicating completion of the ERC on the next cylinder.

1           80. (New) The disk drive of Claim 71 wherein the manufacture test process includes the  
2   final drive verification.

1           81. (New) The disk drive of Claim 80 wherein the controller executes the final drive  
2   verification such that a first final drive verification test is performed when a user command for  
3   operating the disk drive is pending and a second final drive verification test when the computer  
4   system is idle.

1           82. (New) The disk drive of Claim 81 wherein the first final drive verification test is  
2   performed by identifying logical block addresses (LBAs) on the disk to which information is to  
3   be written, determining whether the identified LBAs have been processed, and if the identified  
4   LBAs have not been processed, performing a write/verify on each of the LBAs.

1           83. (New) The disk drive of Claim 81 wherein the second final drive verification test is  
2   performed by identifying an increment of logical block addresses (LBAs) which are unprocessed,

3 performing a write/verify on each of the LBAs in the increment, and indicating which of the  
4 LBAs have been processed.

1 84. (New) The disk drive of Claim 81 wherein:

2 the first final drive verification test is performed by identifying logical block addresses  
3 (LBAs) on the disk to which information is to be written, determining whether the identified  
4 LBAs have been processed, and if the identified LBAs have not been processed, performing a  
5 write/verify on each of the LBAs; and

6 the second final drive verification test is performed by identifying an increment of logical  
7 block addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in  
8 the increment, and indicating which of the LBAs have been processed.

1 85. (New) The disk drive of Claim 71 wherein the controller executes the manufacture  
2 test process on the first portion of the disk such that any major flaws in the disk are detected.

1 86. (New) The disk drive of Claim 71 wherein the first portion of the disk includes a  
2 predetermined percentage of the tracks as well as every Nth of the tracks.

1 87. (New) The disk drive of Claim 71 wherein the manufacture test process is stored in a  
2 random access memory (RAM) in the disk drive.

1 88. (New) The disk drive of Claim 71 wherein the manufacture test process is stored in a  
2 read only memory (ROM) in the disk drive.

1 89. (New) The disk drive of Claim 71 wherein the manufacture test process is stored in  
2 the first portion of the disk.

1 90. (New) The disk drive of Claim 71 wherein the first portion of the disk is smaller than  
2 the second portion of the disk.

1       91. (New) A disk drive, comprising:  
2       a disk with spaced tracks for storing information;  
3       a head that reads and writes information to and from the disk; and  
4       a controller that executes a manufacture test process stored in the disk drive (1) on a first  
5       portion of the disk and not a second portion of the disk while the disk drive is manufactured at a  
6       factory and before the disk drive is delivered from the factory and installed and operating in a  
7       computer system, and (2) on the second portion of the disk for the first time after the disk drive is  
8       manufactured at and delivered from the factory and while the disk drive is installed and operating  
9       in the computer system, thereby reducing manufacturing time for the disk drive at the factory.

1       92. (New) The disk drive of Claim 91 wherein the manufacture test process includes at  
2       least one of flaw mapping, embedded runout compensation (ERC) and final drive verification.

1       93. (New) The disk drive of Claim 91 wherein the manufacture test process includes the  
2       flaw mapping.

1       94. (New) The disk drive of Claim 93 wherein the controller executes the flaw mapping  
2       on the second portion of the disk such that a first flaw mapping test is performed when a user  
3       command for operating the disk drive is pending and a second flaw mapping test is performed  
4       when the computer system is idle.

1       95. (New) The disk drive of Claim 94 wherein the first flaw mapping test is performed by  
2       identifying logical block addresses (LBAs) on the disk, determining whether the identified LBAs  
3       have been processed, and if the identified LBAs have not been processed, performing a  
4       write/verify on each of the LBAs.

1       96. (New) The disk drive of Claim 94 wherein the second flaw mapping test is performed  
2       by identifying an increment of logical block addresses (LBAs) which are unprocessed,  
3       performing a write/verify on each of the LBAs in the increment, and updating which of the LBAs  
4       have been processed.

1           97. (New) The disk drive of Claim 94 wherein:

2           the first flaw mapping test is performed by identifying logical block addresses (LBAs) on

3           the disk, determining whether the identified LBAs have been processed, and if the identified

4           LBAs have not been processed, performing a write/verify on each of the LBAs; and

5           the second flaw mapping test is performed by identifying an increment of logical block

6           addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in the

7           increment, and indicating which of the LBAs have been processed.

1           98. (New) The disk drive of Claim 91 wherein the manufacture test process includes the

2           ERC.

1           99. (New) The disk drive of Claim 98 wherein the controller executes the ERC by

2           determining which cylinder was last processed, performing the ERC on the next cylinder, and

3           indicating completion of the ERC on the next cylinder.

1           100. (New) The disk drive of Claim 91 wherein the manufacture test process includes the

2           final drive verification.

1           101. (New) The disk drive of Claim 100 wherein the controller executes the final drive

2           verification such that a first final drive verification test is performed when a user command for

3           operating the disk drive is pending and a second final drive verification test when the computer

4           system is idle.

1           102. (New) The disk drive of Claim 101 wherein the first final drive verification test is

2           performed by identifying logical block addresses (LBAs) on the disk to which information is to

3           be written, determining whether the identified LBAs have been processed, and if the identified

4           LBAs have not been processed, performing a write/verify on each of the LBAs.

1           103. (New) The disk drive of Claim 101 wherein the second final drive verification test is  
2 performed by identifying an increment of logical block addresses (LBAs) which are unprocessed,  
3 performing a write/verify on each of the LBAs in the increment, and indicating which of the  
4 LBAs have been processed.

1           104. (New) The disk drive of Claim 101 wherein:  
2           the first final drive verification test is performed by identifying logical block addresses  
3 (LBAs) on the disk to which information is to be written, determining whether the identified  
4 LBAs have been processed, and if the identified LBAs have not been processed, performing a  
5 write/verify on each of the LBAs; and  
6           the second final drive verification test is performed by identifying an increment of logical  
7 block addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in  
8 the increment, and indicating which of the LBAs have been processed.

1           105. (New) The disk drive of Claim 91 wherein the controller executes the manufacture  
2 test process on the first portion of the disk such that any major flaws in the disk are detected.

1           106. (New) The disk drive of Claim 91 wherein the first portion of the disk includes a  
2 predetermined percentage of the tracks as well as every Nth of the tracks.

1           107. (New) The disk drive of Claim 91 wherein the manufacture test process is stored in a  
2 random access memory (RAM) in the disk drive.

1           108. (New) The disk drive of Claim 91 wherein the manufacture test process is stored in a  
2 read only memory (ROM) in the disk drive.

1           109. (New) The disk drive of Claim 91 wherein the manufacture test process is stored in  
2 the first portion of the disk.

1           110. (New) The disk drive of Claim 91 wherein the first portion of the disk is smaller

2   than the second portion of the disk.

1           111. (New) A disk drive, comprising:

2   a disk with spaced tracks for storing information;

3   a head that reads and writes information to and from the disk;

4   a controller that executes a manufacture test process stored in the disk drive (1) on a first

5   portion of the disk and not a second portion of the disk using the head while the disk drive is

6   manufactured at a factory and before the disk drive is installed and operating in a computer

7   system, and (2) on the second portion of the disk for the first time using the head after the disk

8   drive is manufactured at the factory and while the disk drive is installed and operating in the

9   computer system.

1           112. (New) The disk drive of Claim 111 wherein the manufacture test process includes at

2   least one of flaw mapping, embedded runout compensation (ERC) and final drive verification.

1           113. (New) The disk drive of Claim 111 wherein the manufacture test process includes

2   the flaw mapping.

1           114. (New) The disk drive of Claim 113 wherein the controller executes the flaw

2   mapping on the second portion of the disk such that a first flaw mapping test is performed when

3   a user command for operating the disk drive is pending and a second flaw mapping test is

4   performed when the computer system is idle.

1           115. (New) The disk drive of Claim 114 wherein the first flaw mapping test is performed

2   by identifying logical block addresses (LBAs) on the disk, determining whether the identified

3   LBAs have been processed, and if the identified LBAs have not been processed, performing a

4   write/verify on each of the LBAs.

1           116. (New) The disk drive of Claim 114 wherein the second flaw mapping test is  
2 performed by identifying an increment of logical block addresses (LBAs) which are unprocessed,  
3 performing a write/verify on each of the LBAs in the increment, and updating which of the LBAs  
4 have been processed.

1           117. (New) The disk drive of Claim 114 wherein:  
2           the first flaw mapping test is performed by identifying logical block addresses (LBAs) on  
3 the disk, determining whether the identified LBAs have been processed, and if the identified  
4 LBAs have not been processed, performing a write/verify on each of the LBAs; and  
5           the second flaw mapping test is performed by identifying an increment of logical block  
6 addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in the  
7 increment, and indicating which of the LBAs have been processed.

1           118. (New) The disk drive of Claim 111 wherein the manufacture test process includes  
2 the ERC.

1           119. (New) The disk drive of Claim 118 wherein the controller executes the ERC by  
2 determining which cylinder was last processed, performing the ERC on the next cylinder, and  
3 indicating completion of the ERC on the next cylinder.

1           120. (New) The disk drive of Claim 111 wherein the manufacture test process includes  
2 the final drive verification.

1           121. (New) The disk drive of Claim 120 wherein the controller executes the final drive  
2 verification such that a first final drive verification test is performed when a user command for  
3 operating the disk drive is pending and a second final drive verification test when the computer  
4 system is idle.

1           122. (New) The disk drive of Claim 121 wherein the first final drive verification test is  
2 performed by identifying logical block addresses (LBAs) on the disk to which information is to

3       be written, determining whether the identified LBAs have been processed, and if the identified  
4       LBAs have not been processed, performing a write/verify on each of the LBAs.

1           123. (New) The disk drive of Claim 121 wherein the second final drive verification test is  
2       performed by identifying an increment of logical block addresses (LBAs) which are unprocessed,  
3       performing a write/verify on each of the LBAs in the increment, and indicating which of the  
4       LBAs have been processed.

1           124. (New) The disk drive of Claim 121 wherein:  
2           the first final drive verification test is performed by identifying logical block addresses  
3       (LBAs) on the disk to which information is to be written, determining whether the identified  
4       LBAs have been processed, and if the identified LBAs have not been processed, performing a  
5       write/verify on each of the LBAs; and

6           the second final drive verification test is performed by identifying an increment of logical  
7       block addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in  
8       the increment, and indicating which of the LBAs have been processed.

1           125. (New) The disk drive of Claim 111 wherein the controller executes the manufacture  
2       test process on the first portion of the disk such that any major flaws in the disk are detected.

1           126. (New) The disk drive of Claim 111 wherein the first portion of the disk includes a  
2       predetermined percentage of the tracks as well as every Nth of the tracks.

1           127. (New) The disk drive of Claim 111 wherein the manufacture test process is stored in  
2       a random access memory (RAM) in the disk drive.

1           128. (New) The disk drive of Claim 111 wherein the manufacture test process is stored in  
2       a read only memory (ROM) in the disk drive.

1           129. (New) The disk drive of Claim 111 wherein the manufacture test process is stored in  
2 the first portion of the disk.

1           130. (New) The disk drive of Claim 111 wherein the first portion of the disk is smaller  
2 than the second portion of the disk.

1           131. (New) A disk drive, comprising:  
2           a disk that includes spaced tracks for storing information;  
3           a head that reads and writes information to and from the disk; and  
4           a controller that executes a manufacture test process stored in the disk drive (1) on a first  
5 portion of the disk and not a second portion of the disk while the disk drive is manufactured at a  
6 factory and before the disk drive is installed and operating in a computer system, and (2) on the  
7 second portion of the disk for the first time in response to automatic initiation by the disk drive  
8 after the disk drive is manufactured at the factory and while the disk drive is installed and  
9 operating in the computer system.

1           132. (New) The disk drive of Claim 131 wherein the manufacture test process includes at  
2 least one of flaw mapping, embedded runout compensation (ERC) and final drive verification.

1           133. (New) The disk drive of Claim 131 wherein the manufacture test process includes  
2 the flaw mapping.

1           134. (New) The disk drive of Claim 133 wherein the controller executes the flaw  
2 mapping on the second portion of the disk such that a first flaw mapping test is performed when  
3 a user command for operating the disk drive is pending and a second flaw mapping test is  
4 performed when the computer system is idle.

1           135. (New) The disk drive of Claim 134 wherein the first flaw mapping test is performed  
2 by identifying logical block addresses (LBAs) on the disk, determining whether the identified

3       LBAs have been processed, and if the identified LBAs have not been processed, performing a  
4       write/verify on each of the LBAs.

1       136. (New) The disk drive of Claim 134 wherein the second flaw mapping test is  
2       performed by identifying an increment of logical block addresses (LBAs) which are unprocessed,  
3       performing a write/verify on each of the LBAs in the increment, and updating which of the LBAs  
4       have been processed.

1       137. (New) The disk drive of Claim 134 wherein:  
2           the first flaw mapping test is performed by identifying logical block addresses (LBAs) on  
3       the disk, determining whether the identified LBAs have been processed, and if the identified  
4       LBAs have not been processed, performing a write/verify on each of the LBAs; and  
5           the second flaw mapping test is performed by identifying an increment of logical block  
6       addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in the  
7       increment, and indicating which of the LBAs have been processed.

1       138. (New) The disk drive of Claim 131 wherein the manufacture test process includes  
2       the ERC.

1       139. (New) The disk drive of Claim 138 wherein the controller executes the ERC by  
2       determining which cylinder was last processed, performing the ERC on the next cylinder, and  
3       indicating completion of the ERC on the next cylinder.

1       140. (New) The disk drive of Claim 131 wherein the manufacture test process includes  
2       the final drive verification.

1       141. (New) The disk drive of Claim 140 wherein the controller executes the final drive  
2       verification such that a first final drive verification test is performed when a user command for  
3       operating the disk drive is pending and a second final drive verification test when the computer  
4       system is idle.

1        142. (New) The disk drive of Claim 141 wherein the first final drive verification test is  
2 performed by identifying logical block addresses (LBAs) on the disk to which information is to  
3 be written, determining whether the identified LBAs have been processed, and if the identified  
4 LBAs have not been processed, performing a write/verify on each of the LBAs.

1        143. (New) The disk drive of Claim 141 wherein the second final drive verification test is  
2 performed by identifying an increment of logical block addresses (LBAs) which are unprocessed,  
3 performing a write/verify on each of the LBAs in the increment, and indicating which of the  
4 LBAs have been processed.

1        144. (New) The disk drive of Claim 141 wherein:  
2            the first final drive verification test is performed by identifying logical block addresses  
3 (LBAs) on the disk to which information is to be written, determining whether the identified  
4 LBAs have been processed, and if the identified LBAs have not been processed, performing a  
5 write/verify on each of the LBAs; and  
6            the second final drive verification test is performed by identifying an increment of logical  
7 block addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in  
8 the increment, and indicating which of the LBAs have been processed.

1        145. (New) The disk drive of Claim 131 wherein the controller executes the manufacture  
2 test process on the first portion of the disk such that any major flaws in the disk are detected.

1        146. (New) The disk drive of Claim 131 wherein the first portion of the disk includes a  
2 predetermined percentage of the tracks as well as every Nth of the tracks.

1        147. (New) The disk drive of Claim 131 wherein the manufacture test process is stored in  
2 a random access memory (RAM) in the disk drive.

1       148. (New) The disk drive of Claim 131 wherein the manufacture test process is stored in  
2 a read only memory (ROM) in the disk drive.

1       149. (New) The disk drive of Claim 131 wherein the manufacture test process is stored in  
2 the first portion of the disk.

1       150. (New) The disk drive of Claim 131 wherein the first portion of the disk is smaller  
2 than the second portion of the disk.

1       151. (New) A disk drive, comprising:  
2       a disk with spaced tracks for storing information;  
3       a head that reads and writes information to and from the disk; and  
4       a controller that executes a manufacture test process stored in the disk drive (1) on a first  
5 portion of the disk and not a second portion of the disk while the disk drive is manufactured at a  
6 factory and before the disk drive is delivered from the factory and installed and operating in a  
7 computer system, and (2) on the second portion of the disk for the first time in response to  
8 automatic initiation by the disk drive after the disk drive is manufactured at and delivered from  
9 the factory and while the disk drive is installed and operating in the computer system, thereby  
10 reducing manufacturing time for the disk drive at the factory.

1       152. (New) The disk drive of Claim 151 wherein the manufacture test process includes at  
2 least one of flaw mapping, embedded runout compensation (ERC) and final drive verification.

1       153. (New) The disk drive of Claim 151 wherein the manufacture test process includes  
2 the flaw mapping.

1       154. (New) The disk drive of Claim 153 wherein the controller executes the flaw  
2 mapping on the second portion of the disk such that a first flaw mapping test is performed when  
3 a user command for operating the disk drive is pending and a second flaw mapping test is  
4 performed when the computer system is idle.

1        155. (New) The disk drive of Claim 154 wherein the first flaw mapping test is performed  
2 by identifying logical block addresses (LBAs) on the disk, determining whether the identified  
3 LBAs have been processed, and if the identified LBAs have not been processed, performing a  
4 write/verify on each of the LBAs.

1        156. (New) The disk drive of Claim 154 wherein the second flaw mapping test is  
2 performed by identifying an increment of logical block addresses (LBAs) which are unprocessed,  
3 performing a write/verify on each of the LBAs in the increment, and updating which of the LBAs  
4 have been processed.

1        157. (New) The disk drive of Claim 154 wherein:  
2            the first flaw mapping test is performed by identifying logical block addresses (LBAs) on  
3 the disk, determining whether the identified LBAs have been processed, and if the identified  
4 LBAs have not been processed, performing a write/verify on each of the LBAs; and  
5            the second flaw mapping test is performed by identifying an increment of logical block  
6 addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in the  
7 increment, and indicating which of the LBAs have been processed.

1        158. (New) The disk drive of Claim 151 wherein the manufacture test process includes  
2 the ERC.

1        159. (New) The disk drive of Claim 158 wherein the controller executes the ERC by  
2 determining which cylinder was last processed, performing the ERC on the next cylinder, and  
3 indicating completion of the ERC on the next cylinder.

1        160. (New) The disk drive of Claim 151 wherein the manufacture test process includes  
2 the final drive verification.

1       161. (New) The disk drive of Claim 160 wherein the controller executes the final drive  
2 verification such that a first final drive verification test is performed when a user command for  
3 operating the disk drive is pending and a second final drive verification test when the computer  
4 system is idle.

1       162. (New) The disk drive of Claim 161 wherein the first final drive verification test is  
2 performed by identifying logical block addresses (LBAs) on the disk to which information is to  
3 be written, determining whether the identified LBAs have been processed, and if the identified  
4 LBAs have not been processed, performing a write/verify on each of the LBAs.

1       163. (New) The disk drive of Claim 161 wherein the second final drive verification test is  
2 performed by identifying an increment of logical block addresses (LBAs) which are unprocessed,  
3 performing a write/verify on each of the LBAs in the increment, and indicating which of the  
4 LBAs have been processed.

1       164. (New) The disk drive of Claim 161 wherein:

2           the first final drive verification test is performed by identifying logical block addresses  
3 (LBAs) on the disk to which information is to be written, determining whether the identified  
4 LBAs have been processed, and if the identified LBAs have not been processed, performing a  
5 write/verify on each of the LBAs; and

6           the second final drive verification test is performed by identifying an increment of logical  
7 block addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in  
8 the increment, and indicating which of the LBAs have been processed.

1       165. (New) The disk drive of Claim 151 wherein the controller executes the manufacture  
2 test process on the first portion of the disk such that any major flaws in the disk are detected.

1       166. (New) The disk drive of Claim 151 wherein the first portion of the disk includes a  
2 predetermined percentage of the tracks as well as every Nth of the tracks.

1           167. (New) The disk drive of Claim 151 wherein the manufacture test process is stored in  
2 a random access memory (RAM) in the disk drive.

1           168. (New) The disk drive of Claim 151 wherein the manufacture test process is stored in  
2 a read only memory (ROM) in the disk drive.

1           169. (New) The disk drive of Claim 151 wherein the manufacture test process is stored in  
2 the first portion of the disk.

1           170. (New) The disk drive of Claim 151 wherein the first portion of the disk is smaller  
2 than the second portion of the disk.

1           171. (New) A disk drive, comprising:  
2           a disk with spaced tracks for storing information;  
3           a head that reads and writes information to and from the disk;  
4           a controller that executes a manufacture test process stored in the disk drive (1) on a first  
5 portion of the disk and not a second portion of the disk using the head while the disk drive is  
6 manufactured at a factory and before the disk drive is installed and operating in a computer  
7 system, and (2) on the second portion of the disk for the first time using the head in response to  
8 automatic initiation by the disk drive after the disk drive is manufactured at the factory and while  
9 the disk drive is installed and operating in the computer system.

1           172. (New) The disk drive of Claim 171 wherein the manufacture test process includes at  
2 least one of flaw mapping, embedded runout compensation (ERC) and final drive verification.

1           173. (New) The disk drive of Claim 171 wherein the manufacture test process includes  
2 the flaw mapping.

1           174. (New) The disk drive of Claim 173 wherein the controller executes the flaw  
2 mapping on the second portion of the disk such that a first flaw mapping test is performed when

3 a user command for operating the disk drive is pending and a second flaw mapping test is  
4 performed when the computer system is idle.

1 175. (New) The disk drive of Claim 174 wherein the first flaw mapping test is performed  
2 by identifying logical block addresses (LBAs) on the disk, determining whether the identified  
3 LBAs have been processed, and if the identified LBAs have not been processed, performing a  
4 write/verify on each of the LBAs.

1 176. (New) The disk drive of Claim 174 wherein the second flaw mapping test is  
2 performed by identifying an increment of logical block addresses (LBAs) which are unprocessed,  
3 performing a write/verify on each of the LBAs in the increment, and updating which of the LBAs  
4 have been processed.

1 177. (New) The disk drive of Claim 174 wherein:  
2 the first flaw mapping test is performed by identifying logical block addresses (LBAs) on  
3 the disk, determining whether the identified LBAs have been processed, and if the identified  
4 LBAs have not been processed, performing a write/verify on each of the LBAs; and  
5 the second flaw mapping test is performed by identifying an increment of logical block  
6 addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in the  
7 increment, and indicating which of the LBAs have been processed.

1 178. (New) The disk drive of Claim 171 wherein the manufacture test process includes  
2 the ERC.

1 179. (New) The disk drive of Claim 178 wherein the controller executes the ERC by  
2 determining which cylinder was last processed, performing the ERC on the next cylinder, and  
3 indicating completion of the ERC on the next cylinder.

1 180. (New) The disk drive of Claim 171 wherein the manufacture test process includes  
2 the final drive verification.

1        181. (New) The disk drive of Claim 180 wherein the controller executes the final drive  
2 verification such that a first final drive verification test is performed when a user command for  
3 operating the disk drive is pending and a second final drive verification test when the computer  
4 system is idle.

1        182. (New) The disk drive of Claim 181 wherein the first final drive verification test is  
2 performed by identifying logical block addresses (LBAs) on the disk to which information is to  
3 be written, determining whether the identified LBAs have been processed, and if the identified  
4 LBAs have not been processed, performing a write/verify on each of the LBAs.

1        183. (New) The disk drive of Claim 181 wherein the second final drive verification test is  
2 performed by identifying an increment of logical block addresses (LBAs) which are unprocessed,  
3 performing a write/verify on each of the LBAs in the increment, and indicating which of the  
4 LBAs have been processed.

1        184. (New) The disk drive of Claim 181 wherein:  
2            the first final drive verification test is performed by identifying logical block addresses  
3 (LBAs) on the disk to which information is to be written, determining whether the identified  
4 LBAs have been processed, and if the identified LBAs have not been processed, performing a  
5 write/verify on each of the LBAs; and  
6            the second final drive verification test is performed by identifying an increment of logical  
7 block addresses (LBAs) which are unprocessed, performing a write/verify on each of the LBAs in  
8 the increment, and indicating which of the LBAs have been processed.

1        185. (New) The disk drive of Claim 171 wherein the controller executes the manufacture  
2 test process on the first portion of the disk such that any major flaws in the disk are detected.

1        186. (New) The disk drive of Claim 171 wherein the first portion of the disk includes a  
2 predetermined percentage of the tracks as well as every Nth of the tracks.

1           187. (New) The disk drive of Claim 171 wherein the manufacture test process is stored in  
2 a random access memory (RAM) in the disk drive.

1           188. (New) The disk drive of Claim 171 wherein the manufacture test process is stored in  
2 a read only memory (ROM) in the disk drive.

1           189. (New) The disk drive of Claim 171 wherein the manufacture test process is stored in  
2 the first portion of the disk.

1           190. (New) The disk drive of Claim 171 wherein the first portion of the disk is smaller  
2 than the second portion of the disk.